

<p>88-108330/16 D16 (D17) SHKJ 30.07.86          SHINGIJUTSU KAIHATSU          30.07.86 JP-179386 (10.03.88) C12n-09/42 C12n-01/67          Prodn. of beta-mannase - which hydrolyses beta-1,4-d-mannopyranoside bonds of e.g. glucomannan etc. and produces manno:oligo saccharide(s)          C88-048648</p>	<p>D(5-C3C, 6-G)          rate can be high. The enzyme is produced extracellularly by alkaliphilic Bacillus and its purificn. is easy. (9pp Dwg.No.0/0)  <b>PREPARATION</b>          The <math>\beta</math>-mannanase is produced extracellularly by Bacillus sp. AM-024 (FERM P-8857) and Bacillus sp. AM-044 (FERM P-8858).</p>
<p>The new beta-mannanase has the following physico-chemical properties: (a) Hydrolyses beta-1,4-D-mannopyranoside bonds of mannan, glucomanna, galactomanna, galactoglucomanan non-specifically and produces manno:oligosaccharides. (b) Acts specifically on beta-mannan but not on alpha-mannan. Acts on manno:oligosaccharides whose molecular weight is larger than or equal to beta-1,4-D-mannotetraose and hydrolyses them. (c) Optimum pH is 8-10 and stable at pH 6-10 after treatment at 60 deg. C for 30 min. (d) Stable up to 65 deg. C at pH 8.0 for 30 min. (e) Optimum temp. range is Near 65 deg. C. (f) Inactivated at pH 5.0 and 12.5 after treatment at 60 deg. C for 30 min. Inactivated at 80 deg. C at pH 8.0 for 30 min. (g) Inhibition and activation : Inhibited by HgCl<sub>2</sub>, AgNO<sub>3</sub>, EDTA Na<sub>2</sub>, urea, SDS and sodium dodecylbenzenesulphonate.  <b>USE/ADVANTAGE</b> - Because optimum pH is alkaline, the beta-mannanase can be used directly after extraction of beta-mannan which is performed at alkaline. Because the enzyme is thermostable hydrolysis can be performed at a higher temperature and reaction</p>	<p><b>EXAMPLE</b>          Bacillus sp. AM-024 (FERM P-8857) was cultured in a medium (pH 9.5) contg. guar gum (0.5%), corn steep liquor (5%) (NH<sub>4</sub>)<sub>2</sub> SO<sub>4</sub> (0.1%), K<sub>2</sub>HPO<sub>4</sub> (0.1%), MgSO<sub>4</sub> . 7H<sub>2</sub>O (0.02%) and Na<sub>2</sub>CO<sub>3</sub> (0.25%) at 37°C for 48 hours at 200 r.p.m. After the culture, 40 U/ml of <math>\beta</math>-mannanase was produced in the medium.</p>

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